

FEATURES

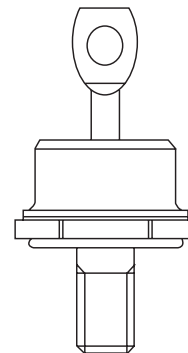
- 1). High surge current capability
- 2). Stud cathode and stud anode version
- 3). Leaded version available
- 4). Types up to 1600V V_{RRM}

TYPICAL APPLICATIONS

- 1). Battery charges
- 2). Converters
- 3). Power supplies
- 4). Machine tool controls
- 5). Welding

MAJOR RATINGS AND CHARACTERISTICS

Parameters		85HF(R)		UNIT
		10 to 120	140 to 160	
$I_{F(AV)}$		85	85	A
	@ TC	140	110	°C
$I_{F(RMS)}$		133		A
I_{FSM}	@ 50Hz	1700		A
	@ 60Hz	1800		A
I^2t	@ 50Hz	14500		A ² s
	@ 60Hz	13500		A ² s
V_{RRM}	range	100 to 1200	1400 to 1600	V
T_J	range	- 65 to 180	- 65 to 150	°C



ELECTRICAL SPECIFICATIONS

1). Voltage Ratings

Type number	Voltage Code	V_{RRM} , maximum repetitive peak reverse voltage	V_{RSM} , maximum non-repetitive peak reverse voltage	I_{RRM} max. @ $T_J = T_J$ max
		V	V	mA
85HF(R)	10	100	200	9
	20	200	300	
	40	400	500	
	60	600	700	
	80	800	900	
	100	1000	1100	
	120	1200	1300	
	140	1400	1500	4.5
	160	1600	1700	

2). Forward Conduction

Parameters		85HF(R)		Unit	Conditions		
		10 to 120	140 to 160				
$I_{F(AV)}$	Max. average forward current @ Case temperature	85	85	A	180° conduction, half sine wave		
		140	110	°C			
$I_{F(RMS)}$	Max. RMS forward current	133		A	t = 10ms t = 8.3ms	No voltage reapplied	Sinusoidal half wave, Initial $T_J = T_J \text{ max.}$
I_{FSM}	Max. peak, one-cycle forward, non-repetitive surge current	1700					
		1800					
		1450					
I^2t	Maximum I^2t for fusing	1500		A ² s	t = 10ms t = 8.3ms	100% V_{RRM} reapplied	
		14500					
		13500					
		10500					
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	9400		A ² √s	t = 10ms t = 8.3ms	No voltage reapplied	
		16000					
$V_{F(TO)}$	Low level value of threshold voltage	0.68		V	$T_J = T_J \text{ max.}$		
$V_{F(TO)}$	High level value of threshold voltage	0.69		V	$T_J = T_J \text{ max.}$		
r_f	Low level value of forward slope resistance	1.62		mΩ	$T_J = T_J \text{ max.}$		
r_f	High level value of forward slope resistance	1.75					
V_{FM}	Max. forward voltage drop	1.2	1.4	V	$I_{pk} = 220A, T_J = 25^\circ C, t_p = 400 \mu s$ rectangular wave		
T_J	Max. junction operating temperature range	-65 to 180		°C			
T_{stg}	Max. storage temperature range	-65 to 150					
R_{thJC}	Max. thermal resistance, junction to case	0.35		K/W	DC operation		
R_{thCS}	Max. thermal resistance, case to heatsink	0.25			Mounting surface, smooth, flat and greased		
	Maximum shock	1500g			see note *(1)		
	Maximum constant vibration	20g			50Hz see note *(1)		
	Maximum constant acceleration	5000g			Stud outwards see note *(1)		
T	Max. allowed mounting torque ± 10%	2.3-3.4		Nm lbf · in	Not lubricated threads		
		20-30					
wt	Approximate weight	17 (0.6)		g (oz)	unleaded device		
	Case style	DO-5			See Outline Table		

*(1) Available only for 88HF

ΔR_{thJC} Conduction

(The following table shows the increment of thermal resistance R_{thJC} when devices operate at different conduction angles than DC)

Conduction angle	Sinusoidal conduction	Rectangular conduction	Units	Conditions
180°	0.10	0.08	K/W	$T_J = T_J \text{ max.}$
120°	0.11	0.11		
90°	0.13	0.13		
60°	0.17	0.17		
30°	0.26	0.26		

PERFORMANCE CURVES FIGURE

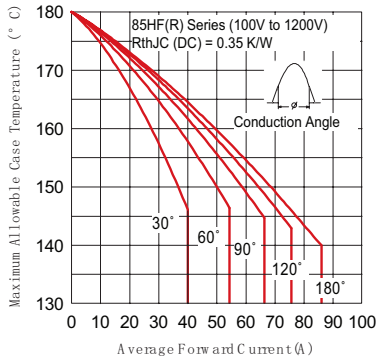


Fig. 1 - Current Ratings Characteristics

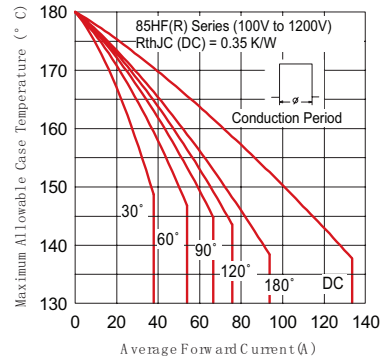


Fig. 2 - Current Ratings Characteristics

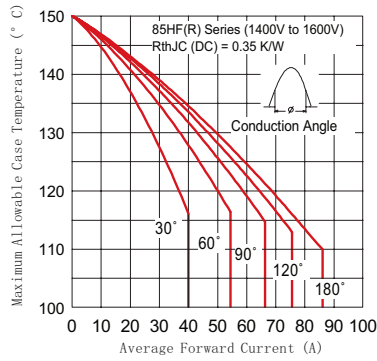


Fig. 3 - Current Ratings Characteristics

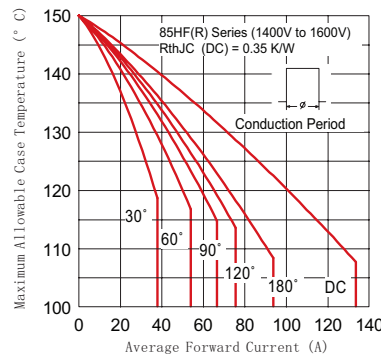


Fig. 4 - Current Ratings Characteristics

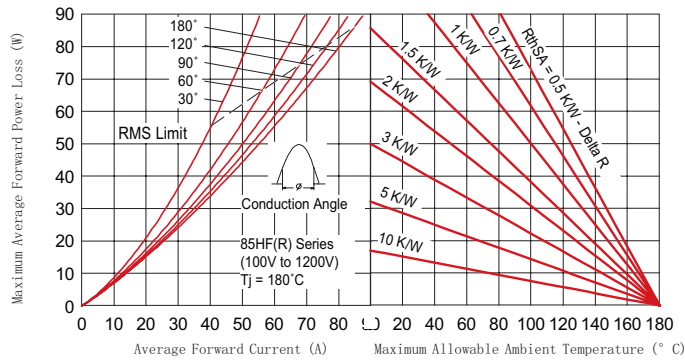


Fig. 5 - Forward Power Loss Characteristics

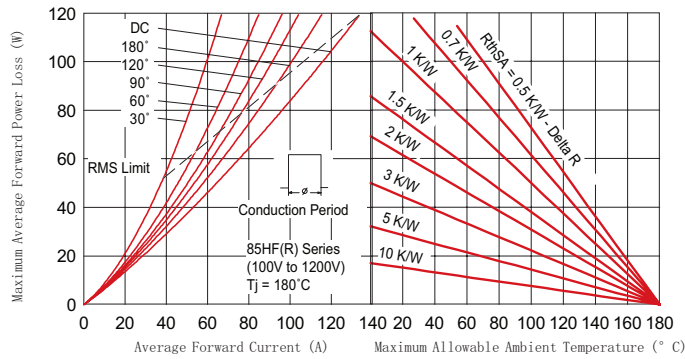


Fig. 6 - Forward Power Loss Characteristics

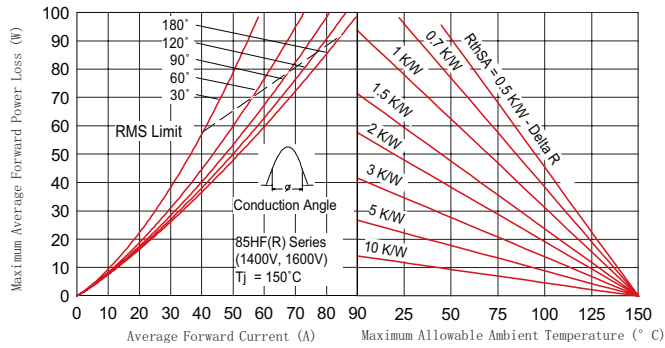


Fig. 7 - Forward Power Loss Characteristics

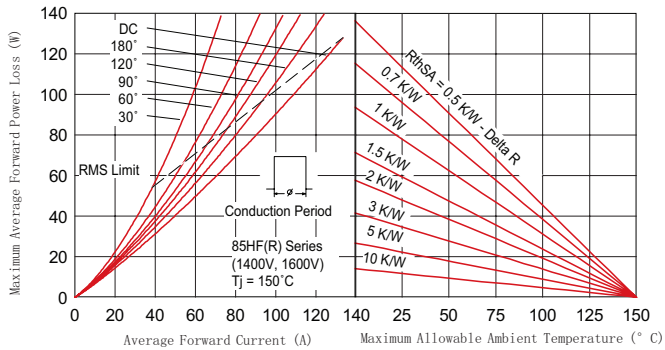


Fig. 8 - Forward Power Loss Characteristics

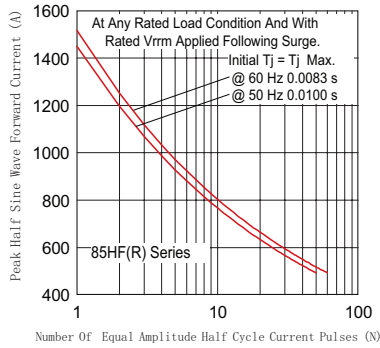


Fig. 9 - Maximum Non-Repetitive Surge Current

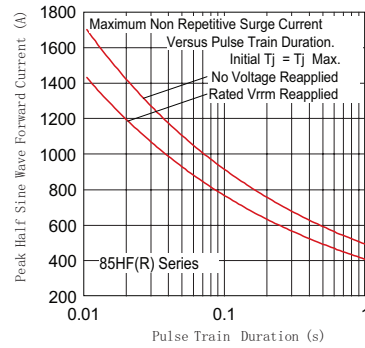


Fig. 10 - Maximum Non-Repetitive Surge Current

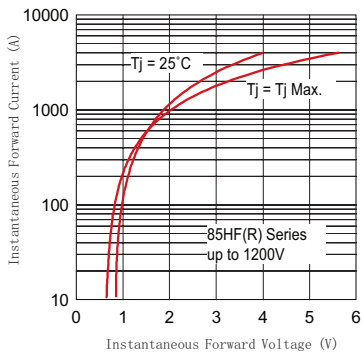


Fig. 11 - Forward Voltage Drop Characteristics (up to 1200V)

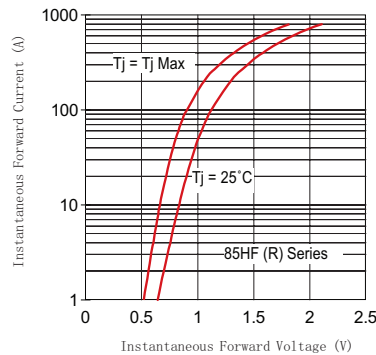


Fig. 12 - Forward Voltage Drop Characteristics (for 1400V, 1600V)

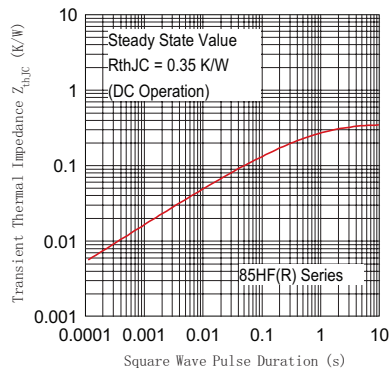
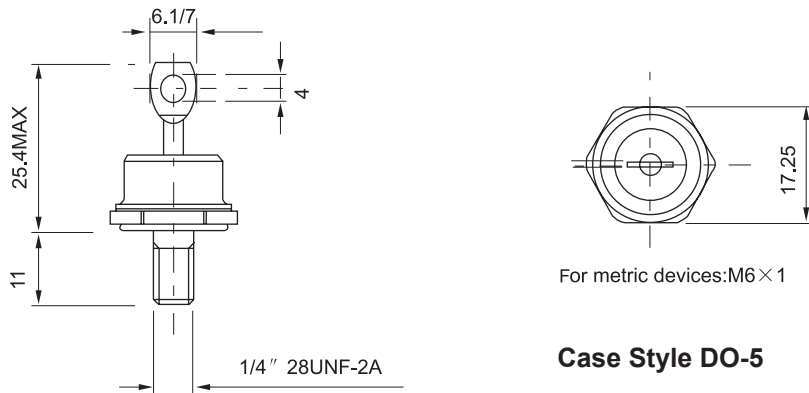


Fig. 13 - Thermal Impedance Z_{thJC} Characteristics

OUTLINE



For metric devices: M6 × 1

Case Style DO-5

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